

Work Order ID 65233

January 10, 2011 10:00:48 AM



Page 1

Item ID:	D4187-7	Accept		Setup	Start	
Revision ID:	PRELIM				Stop	
Item Name:	Bearing					
Start Date:	1/10/11	Start Qty: 2.00		Cust Item ID:		
Required Date:	1/28/11	Req'd Qty: 2.00		Customer:		
Reference:						

Approvals:	Process Plan: <u>CL</u>	Date: <u>11/01/10</u>	Tooling:	Date:	Run	Start	
	QC:	Date:	SPC (Y/N):	Date:		Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D4187	<u>PAT PAC</u> <u>11.01.28</u>								
100	Hardinge CNC LATHE SMALL	0.00				<u>2</u>	<u>0</u>		
	Hardinge	Memo							
Hardinge CNC Lathe Small	1-TURN AS PER FOLIO FA980 & DWG FOLIO REV: <u>PAI</u>	0.00							
	DWG REV: <u>PAI</u>								
	2-DEBURR AS REQUIRED								
110	QC2- Inspect parts off machine FAI/FAIB	0.00				<u>2</u>	<u>0</u>		
	QC	Memo							
Quality Control									



PRELIMINARY ISSUE

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries

Picklist Print

Page 1

January 10, 2011 10:00:48 AM

Work Order ID: 65233



Parent Item: D4187-7



Parent Item Name: Bearing


Start Date: 1/10/11

Required Date: 1/28/11

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP REV:A NEW ISSUE 10-10-19 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M4130NR0.375 		Purchased	No			100	f	11.7500	0.04	0.084211		11/11/12	
4130 steel RD bar .375"													

Location

Loc Qty

Loc Code

MAT032

11.75

108059

11.75

08

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

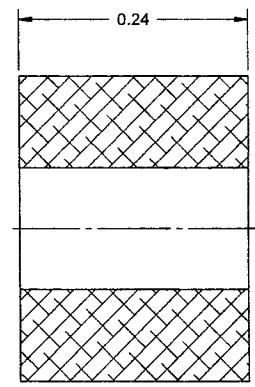
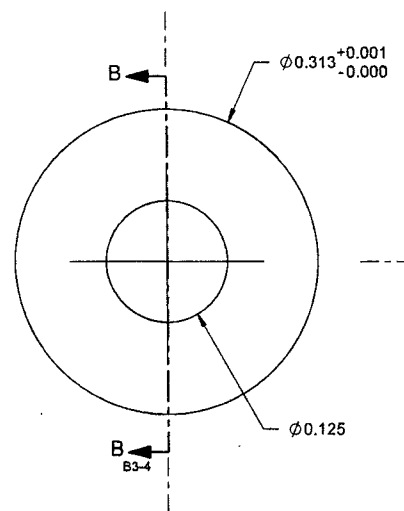
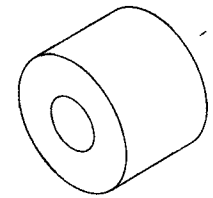
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

W/O 65235



SECTION B-B B6-4

D4187-7 BUSHING

NOTES:

- 1) MATERIAL: AISI 4130H ROUND BAR
PER MIL-S-6758 OR AMS 6348/6370/6528
REF DART SPEC M4140N-R
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.004 lbs

DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. PA2
MFG. APPR.		D4187	SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		BEARING	NTS
DATE	10.09.20	<small>COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

Checklist Print

January 10, 2011 10:00:48 AM

Work Order ID: 65233

Parent Item: D4187-7

Parent Item Name: Bearing




Start Date: 1/10/11

Start Qty: 2.00

Required Date: 1/28/11

Required Qty: 2.00

Comments: IPP REV:A NEW ISSUE 10-10-19 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M4130NR0.375		Purchased	No			100	f	11.7500	0.04	0.084211			
													
4130 steel RD bar .375"													

Location

MAT032

108059

Loc Qty

11.75

11.75

Loc Code

08

Clamp RD. 6271 RCPB T21 2009/08

Receiving Report

Date: 8/5/16
 Supplier: CAMP1

Batch No: M108055
 Dart P/O: 6271

Packing Slip: Yes ☒ No ☐
 Invoice: Yes ☐ No ☒
 Receipt: Cash ☐ Cr ☒

Release Note Attached: Yes ☐ No ☒ N/A ☐
 Waybill Attached: Yes ☐ No ☒ N/A ☐
 Shipment Complete: Yes ☒ No ☐ N/A ☐
 QC6 Inspection 8/08/05/16 N/A ☒
 Work Order N/A ☒

Discrepancies

Part Number	Description	Quantity Ordered	Quantity Received	Quantity Returned	Quantity Short	Comments

Initials of receiver (if shipment OK) Level 12

Production/Admin: 08/05/20
 Date RCP 7921
 Received/Costing CR
 Initial

Location

Dart Aerospace Ltd

Dart Aerospace Ltd
1270 Aberdeen St
Hawksbury, Ontario K6A 1K7
Phone: (613) 632-3336
Fax: (613) 632-4443

Receiving Slip

Date May 20, 2008	Page 1
Receipt Number RCP00007921	

Purchase From:

Campi Steel
935 Boul. Du Havre
Valleyfield, QC J6S 5L1

Ship To:

Main Finished Goods Location
Dart Aerospace Ltd
1270 Aberdeen St
Hawksbury, Ontario K6A 1K7

Reference	Description	Contact	Vendor Number	PO Number
			VC-CAM002	PO00006271

Vendor Item Number	Item Number	Description	Qty. Received	UOM	Unit Cost	Extended Cost	Arrival Date
	M4130NR0375	4130 steel rod .375"	12.0000	f	10.450000	125.40	May 20, 2008
		PER MIL-S-6758 OR AMS 6348/6370/6528 MATERIAL: AISI 4130N ROUND BAR B/N108059					
	M4130NT0375W08	4130 tube .375OD .085	20.0000	f	11.250000	CL 225.00	May 20, 2008
		PER MIL-T-6736 OR AMS 6371/6360/6361/6362/6373/6374 MATERIAL: AISI 4130N STEEL TUBING B/N108059					
	M4130NT0500W05	4130 tube .500OD .058	20.0000	f	9.500000	CL 190.00	May 20, 2008
		AS ABOVE B/N108059					

Comments:

DART

Purchase Order

Date May 01, 2008	Page 1
Purchase Order Number PO00006271	

Dart Aerospace Ltd
1270 Aberdeen St
Hawksbury, Ontario K6A 1K7
Phone: (613)632-9577
Fax: (613)632-1053

FAXED
613-632-1053

Vendor Address:

Campi Steel
935 Boul. Du Havre
Valleyfield, QC J6S 5L1
Phone (800) 667-4248
Fax (450) 377-5696

Ship To:

Main Finished Goods Location
Dart Aerospace Ltd
1270 Aberdeen St
Hawksbury, Ontario K6A 1K7

Reference	Contact	Vendor Number	PO Date	Terms	Ship Via	Expected Arrival
		VC-CAM002	May 01, 2008	N30	yours	May 06, 2008

Qty. Ordered	Item Number	Description	Expected Arrival	Drop-Ship	Unit Cost	UOM	Extended Price
✓ 100.0000	M6061T6A750W0625	angle 750 x 750 x.1/16w	5/6/2008	No	0.670000	f	67.00
		Comments: MATERIAL: 6061-T6 OR T6511 (QQ-A-200/8) ALUMINUM ANGLE					
✓ 12.0000	M304TS1250W120	304 SQ Tube 1.250x1.250	5/6/2008	No	8.850000	f	106.20
		Comments: MATERIAL: AISI 304/316 SS SQUARE TUBING					
✓ 12.0000	M4130NR0375	4130 steel rod .375"	5/6/2008	No	10.450000	f	125.40
		Comments: MATERIAL: AISI 4130N ROUND BAR PER MIL-S-6758 OR AMS 6348/6370/6528					
✓ 20.0000	M4130NT0375W085	4130 tube .375OD .085W	5/6/2008	No	11.250000	f	225.00
		Comments: MATERIAL: AISI 4130N STEEL TUBING PER MIL-T-6736 OR AMS 6371/6360/6361/6362/6373/6374					
✓ 20.0000	M4130NT0500W058	4130 tube .500OD .058W	5/6/2008	No	9.500000	f	190.00
		Comments: AS ABOVE					

MATERIAL CERTIFICATION
REQ'D UPON DELIVERY

Comments:

Tax Summary:

GST 35.68
GSTME 0.00
GSTND 0.00

Less:

included tax

0.00

Subtotal

713.60

Total tax

35.68

Total purchase order in

CAD Dollars

749.28

Entered By: CL CLAVOIE

Approved By: 



935, boul. du Havre
Valleyfield (Québec)
J6S 5L1

TÉLÉPHONE : 450 377-4248
FAX : 450 377-5696

MONTREAL : 514 336-4248
FAX : 514 336-4246

37681
DISTRIBUTEUR D'ACIER ET MÉTAUX SPÉCIALISÉS
STEEL AND SPECIALTY METALS DISTRIBUTOR

ONTARIO : 1 800 667-4248
FAX : 1 866 456-4242

On a du Savoir "FER"

VENDU À / SOLD TO:

613-632-5200 613-632-1053

EXPÉDIEZ À / SHIP TO:

DART AEROSPACE LTD
1270 ABERDEEN STREET
HAWKESBURY,
ONTARIO
K6A 1K7

DART AEROSPACE LTD
1270 ABERDEEN STREET
HAWKESBURY,
ONTARIO
K6A 1K7

COMMANDE
ORDER

N° 134965

DATE 08/05/08

BON DE LIVRAISON
PACKING SLIP N°

DATE DE LIVRAISON
DELIVERY DATE 16/05/08

VOTRE N° DE COMMANDE / YOUR PO. N°	VEND. / SALESM.	CODE CLIENT / CUST. CODE	EXPÉDIE PAR / SHIP VIA	TERMES / TERMS	FERR.	REMARQUES / REMARKS	PAGE N°
6271	D	DAER		NET 30 JOURS	2R		001

✓ NOMBRE QUANTITY	CODE DE PRODUIT PRODUCT CODE	COMMANDE ORDERED	EXPÉDIE SHIPPED	DESCRIPTION	POIDS WEIGHT	PRIX PRICE	PAR PER *	MONTANT AMOUNT
				BO DE 134718				
M		12		4130 NORM. ROND 3/8 1 X OK	12.00			
M		20		TUBE 4130 3/8 OD X .085 1 X OK	20.00			
M		20		TUBE 4130 1/2 OD X .058 1 X OK	20.00			
	FUL1	1		ENERGETIC SURCHARGE	1.00			
					POIDS TOTAL TOTAL WEIGHT 53			

* Unités de mesure - Units of measure: CLB Cent livres Hundred pounds • CPM Cent pieds Hundred feet • UN Unité Unit • PI Pied Foot • PC Pied carré Square foot

CONDITIONS :

LES MATÉRIAUX LIVRÉS ET FACTURÉS SONT À LA PROPRIÉTÉ DE "ACIER CAMP INC." JUSQU'À PAIEMENT COMPLET. ALL SOLD AND DELIVERED MATERIALS REMAIN THE PROPERTY OF "ACIER CAMP INC." UNTIL PAYMENT IS MADE IN FULL. COMPLETE AND CASHED. ENVOI. • LES PRISES DE PERTES OU BIEN SONT À LA CHARGE DE L'ACHETEUR. • LA GARANTIE DE QUALITÉ DU MATÉRIEL EST LA MÊME QUE CELLE DU FABRICANT. • L'ACHETEUR S'ENGAGE À RESPECTER LES CONDITIONS SUIVANTES : NET 30 JOURS DE LA DATE DE FACTURATION, ET TOUT COMPTE EN HAVRE DANS LES 30 JOURS ENTRAÎNE DES FRAIS DE 2% PAR MOIS (24% PAR ANNÉE) OÙ IL ADOPTE DE PAYER. • TOUT DÉFAUT DOIT ÊTRE DÉCOUVERT À L'INTÈRIEUR DES 30 JOURS ENTRAÎNE LA DÉCHARGE DU TERME ET PERMET AU Vendeur À SON CHOIX DE RÉCLAMER TOUT SOLDE DU PRIX DE VENTE OU REPRISE LE BIEN VENDU. • TOUTE RÉCLAMATION DOIT ÊTRE FAITE DANS LES CINQ JOURS SUivant la PRÉSENTATION DE CE DOCUMENT. • TOUTE MARCHANDISE ENDOMMAGÉE, ALTÉRÉE OU DÉFECTUEUSE NE PEUT ÊTRE REPRISÉE. • AUCUN RETOUR DE MARCHANDISE NE SERA ACCÉPTÉ SANS NOTRE AUTORISATION. • TOUTE MARCHANDISE RETOURNÉE EST SUJÉTTE À DES FRAIS DE MANUTENTION DE 25%.

CONDITIONS:

ALL SOLD AND DELIVERED MATERIALS REMAIN THE PROPERTY OF "ACIER CAMP INC." UNTIL PAYMENT IS MADE IN FULL. COMPLETE AND CASHED. ALL LOST MATERIALS ARE AT THE BUYER'S EXPENSE. • ALL MATERIALS BEAR THE SAME WARRANTY AS GIVEN BY THE MANUFACTURER. THE BUYER HEREBY ACCEPTS TO RESPECT THE FOLLOWING CONDITIONS: NET 30 DAYS FROM BILLING DATE AND THE BUYER ACCEPTS TO PAY THE ADMINISTRATION CHARGES OF 2% PER MONTH OR 24% PER ANNUUM ON ALL PAST DUE ACCOUNTS OVER 30 DAYS. • ANY DEFECT IN RESPECT WITH THIS CONTRACT WILL LEAD TO PAYMENT BY ACCELERATION AND PERMITS TO THE SELLER, AT HIS CHOICE TO CLAIM FOR THE BALANCE DUE OR THE REPOSSESSION OF THE GOODS SOLD. • ANY CLAIM MUST BE MADE WITHIN FIVE DAYS WITH THIS DOCUMENT ENCLOSED. • ANY MERCHANDISE THAT HAS BEEN DAMAGED, CORRUPT OR DEFECTIVE CANNOT BE RETURNED. • ALL GOODS RETURNED MUST BE WITH OUR AUTHORIZATION AND ARE SUBJECT TO A 25% RESTOCKING CHARGE.

MARCHANDISE REÇUE EN BONNE CONDITION / MERCHANDISE RECEIVED IN GOOD CONDITION

X	A/Y	M/M	J/D

SIGNATURE DU CLIENT / CUSTOMER'S SIGNATURE

DATE

SOUS-TOTAL
SUB TOTAL

T.P.S.
G.S.T.

T.V.Q.
Q.S.T.

TOTAL

PRÉPARÉ / PREPARED	VÉRIFIÉ / VERIFIED	LIVRÉ / DELIVERED	HEURE / TIME
PAR BY	PAR BY	PAR BY	



CERTIFICATE OF TESTS

ENGINEERED PRODUCTS

481 ROSE AVE S E
MASSILLON, OH 446646
REPUBLIC ENGINEERED PRODUCTS

FAX 330-837-7017

January 30, 2008

PAGE 1

OF 2

PURCHASE ORD: 01-40811

PART NUMBER: IAC16009

ORDER NUMBER: 1357859 - 01

HEAT: 8990031

===== CHANGE ADDRESS =====

PURCHASE ORDER DATE:

11/15/2007

ACCOUNT NUMBER:

5613-1780-01

SCHEDULE:

5127-84

REVISION:

1

SHIP TO =====

----- MATERIAL DESCRIPTION -----
COLD FINISHED STEEL BARS ALLOY ASTM A108-03 LEVEL 1 FG AMS 2301J AMS 6348C AMS 4 6789A COND D-4
REVISION DTD 09/03 EXC MARK AMS 6370M CASTLE METALS SPEC G41300-02 REVISION 23 DTD 06/06/07 UNS
G41300 HP-AISI-4130 FINE GRAIN VACUUM DEGASSED COLD DRAWN NORM BEFORE CD RESTRICTED HARDENABILITY
LIGHT WEIGHT LEFT
SIZE: RDS .3750 DIAM X 10FT 0.0000IN MIN/13FT 0.0000IN MAX
RDS 9.5250MM DIAM X 3048.0000MM MIN/3962.4000MM MAX

LADLE CHEMISTRY %							
C	MN	P	S	SI	CU	NI	CR
0.29	0.47	0.009	0.013	0.22	0.14	0.12	0.91
V	MO	BN	AL	CB	N		
0.004	0.18	0.007	0.026	0.001	0.0057		

CALCULATED TESTS

REDUCTION RATIO 1,177.6 TO 1

AUSTENITIC GRAIN SIZE 5 OR FINER BASED ON A TOTAL ALUMINUM CONTENT EQUAL TO OR GREATER THAN .020% PER
ASTM A29.

----- SEMI - FINISHED RESULTS -----

JOMINY HARDNESS TEST SAE J406/ASTM A255
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18 20 22 24 26 28 30 32
51 50 48 44 38 34 32 31 30 29 28 28 27 27 27 26 25 24 23 23 22 22 21 20

MACHRO ETCH TEST ASTM E381/MIL STD 430
ETCHANT: HCL TEMPERATURE: 170

	A	R	C
AVG	1	1	1

MAGNETIC PARTICLE TEST AMS 2301 AMS2304 AMS2300

	IND	AVG	IND	AVG
	FREQ	FREQ	SEV	SEV
PCN 03	0	0	0	0

----- FINISHED SIZE RESULTS -----

DECAURIZATION TEST SAE J419/ASTM B1077
ETCHANT = NITAL MAGNIFICATION = 100X

	TOTAL
	DEPTH
	INCHES
PCN 269	0.002

C. R. ANDERSON
GEN. MGR. COLD FINISHED OPERATIONS

BY ALISON J. BLONDHEIM

DATE RCD 2/1/08
IAC 16009
APPROVED BY



CERTIFICATE OF TESTS

401 ROSE AVE S E
MASSILLON, OH 448646
REPUBLIC ENGINEERED PRODUCTS

FAX 330-837-7817
January 30, 2008
PAGE 2

OF 2

PURCHASE ORD: 01-40811
PART NUMBER: IAC16009
ORDER NUMBER: 1357859 - 01
MAT: 8990031

PURCHASE ORDER DATE: 11/15/2007
ACCOUNT NUMBER: 5613-1780-01
SCHEDULE: 5127-84
REVISION: 1

DECARBURIZATION TEST SAE J419/ASTM E1077
ETCHANT - NITAL MAGNIFICATION - 100X

TOTAL
DEPTH
INCHES
PCE 01 0

HARDNESS TEST ASTM E10/ASTM A370 HBW AS-RLD/CD HBW
MID-RADIUS
AUG 185

HARDNESS TEST ASTM E10/ASTM A370 HBW AS-RLD/CD HBW
SURFACE
PCE 01 175
PCE 02 182

NOTES
REPUBLIC ENGINEERED PRODUCTS HEREBY CERTIFY THAT THE MATERIAL LISTED HEREIN HAS BEEN INSPECTED AND
TESTED IN ACCORDANCE WITH THE METHODS PRESCRIBED IN THE GOVERNING SPECIFICATIONS AND BASED UPON THE
RESULTS OF SUCH INSPECTION AND TESTING HAS BEEN APPROVED FOR CONFORMANCE TO THE SPECIFICATIONS.

CERTIFICATE OF TESTS SHALL NOT BE REPRODUCED EXCEPT IN FULL.

ALL TESTING HAS BEEN PERFORMED USING THE CURRENT REVISION OF THE TESTING SPECIFICATIONS.

RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED
AS A FELONY UNDER FED STATUTES TITLE 18 CHAPTER 47.

THE MATERIAL WAS NOT EXPOSED TO MERCURY OR ANY METAL ALLOY THAT IS LIQUID AT AMBIENT TEMPERATURE
DURING PROCESSING OR WHILE IN OUR POSSESSION.

NO WELD OR WELD REPAIR WAS PERFORMED ON THIS MATERIAL.

THE RESULTS REPORTED RELATE ONLY TO THE ITEMS TESTED

MATERIAL WAS VACUUM DEGASSED.

ALUMINUM FINE GRAIN PRACTICE.

MICROSTRUCTURE IS SATISFACTORY.

SOURCE INFORMATION
MELT SOURCE: CANTON CAST ROLL MELT COUNTRY: U.S.A HOT ROLL SOURCE: LORAIN 9/10, U.S.A
MELT METHOD: RF BLOOM RED. RATIO: 1177.6

END OF DATA
FAX SHIP TO 1 COPY ATTENTION CASTLE RECEIVING 1-8474551642
WITH SHIPMENT 2 COPIES PRINTED AT SHIPPING AREA
FILE 1 COPY

C. R. ANDERSON
GEN. MGR. COIL FINISHED OPERATIONS

BY ALYSON J. BLONDHEIM



PLYMOUTH TUBE CO.

1209 East 12th Street, Sesser, Illinois 61364
Phone: (815) 673-1515 Fax No. (815) 672-7343

NO. 1010 P. 6
PRODUCT CERTIFICATION

SALES ORDER - LINE ITEM/ RLS
010660 - 1 / 0

WORK ORDER 006252
HEAT NUMBER 508647

05-8000



3/8

CUSTOMER P.O. P807441001	CUSTOMER PART 100102	LADING NO	SHIPMENT DATE
PART DESCRIPTION: H03750830J000 OD: 0.3768" Max: 0.3790" Min: 0.3750" Wall: 0.0630" Max: 0.0610" Min: 0.0780" Length: 17.00' / 24.00' Spec: MIL-T 8736B Seamless Aircraft Grade: 4130 Finish: Cond N			
Additional Specification(s)			
<u>Complies to AMS-T 8736</u> <p>This test report data is for the heat Chemistry Stated above.</p> <p>The material in this test report is:</p> <ol style="list-style-type: none"> 1) Free from <u>Mercury</u> contamination. 2) <u>Not NAFTA</u> compliant. <p style="text-align: right;">End of Certification</p>			

THESE TEST REPORTS APPLY

TO _____

P.O. No. 31-5166359

INV. No. 229108

FOOTAGE 30.5000

DATE 5/16/08

Pg 1/2

I certify that the results are a true and correct copy of the records prepared and maintained by Plymouth Tube Company, Sesser in compliance with the requirements of the cited specification. Chemistry is as reported by the steel supplier. This test report cannot be reproduced or distributed except in full without the written permission of Plymouth Tube.

Dale W. Schmidt

Quality Assurance



PLYMOUTH TUBE CO.
 1200 East 12th Street, Superior, Wisnisi 54884
 Phone: (919) 672-1515 Fax No. (919) 672-7343

PRODUCT CERTIFICATION

SALES ORDER - LINE ITEM / RLS
 010669 - 1 / 0

WORK ORDER 0062652
 HEAT NUMBER 508647



CUSTOMER P.O. CUSTOMER PART
 P807441001 100102

LADING NO

SHIPMENT DATE

PART DESCRIPTION: P80820J000

OD: 0.5780" Max: 0.5790" Min: 0.5760"
 Wall: 0.0030" Max: 0.0010" Min: 0.0760"
 Length: 17.00" RA.0V Spac: NH-T 67308 Seamless Aircraft
 Grade: 4130
 Finish: Ground

CERTIFICATION REQUIREMENTS

This material was Edly Current tested and conforms to the requirements of ASTM A-414.
 This material is severe relief annealed. The final annealing temperature was 1370 degrees Fahrenheit.
 The Grain size is determined and reported by the steel material supplier in accordance to ASTM E-412.
 This raw material was magnetic particle inspected by the raw material supplier in accordance to ASME Sec III and/or ASTM E-1444, and tested as Frequency, and severity to ASME Sec III, same method.
 Yield is determined by using the 0.2% offset method.

Chemical Analysis

C	Mn	P	S	Si	Al	Cr	Mo	Ni	Pb	Cu
.55	.25	.005	.004	.22	.004	.06	.17	.07	.001	.07

V	Ti	Sn
.002	.002	.012

Physical Properties

Temp. Severity Grain Size
 .000 .004 0

Heat Source

Heat Source
 Mueller Steel Corp - Germany

Mechanical Properties

TEST	UNIT	TESTS	HIGH	LOW	AVERAGE	STD DEV
Tensile	PSI	11	142200	117200	129700	2200
Yield	PSI	14	107200	100440	113820	2004
Elongation	%	14	18	17	18	1
Reduction of Area	%	0	—	—	—	—
Rockwell C	RC	11	22	20	22	1
TEST	RESULT					
Demonstrated	Pass					
Total ENCOD errors	Pass					

I certify that the results are a true and correct copy of the records prepared and maintained by Plymouth Tube Company. Similar in compliance with the requirements of the cited specification. Chemistry is as reported by the steel supplier. This test report cannot be reproduced or distributed except in full without the written permission of Plymouth Tube.

Dale W. Schmitt

Quality Assurance

(C) ASME Computer Systems - 060302 (v1.1)

Page 1

Date Printed 02/25/2003

1209 East 12th Street, Streator, Illinois 61384
Phone: (815) 673-1515 Fax No. (815) 672-7343

SALES ORDER - LINE ITEM NLS
037963 - 1 / 0

WORK ORDER 011673
HEAT NUMBER 627766

ISO 9001:2000
AND
TS 16949:2002
CERTIFIED

1/2

CUSTOMER P.O.	CUSTOMER PART	LADING NO	SHIPMENT DATE
P887680003	100048		
PART DESCRIPTION#100000590 OD: 0.8000" Max: 0.8050" Min: 0.7950" Wall: 0.0580" Max: 0.0630" Min: 0.0530" Length: 19.00' / 24.00' Spec: MIL-T 6736B Seamless Aircraft Grade: 4130 Finish: Cond N			
Additional Specification(s)			
Complies to AMS-T 8730A			
This test report data is for the heat Chemistry Stated above.			
The material in this test report is:			
1) Free from <u>Polybrominated Biphenyls (PBB)</u> , <u>Polybrominated Diphenyl Ethers (PBDE)</u> , and <u>Mercury</u> contamination.			
2) <u>NAFTA</u> compliant.			
End of Certification			
Pg 1/2			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"><p>CARBON & ALLOY STEEL CORP. THESE TEST REPORTS APPLY</p><p>TO _____</p><p>P.O. No. <u>31-566359</u></p><p>INV. No. <u>229108</u></p><p>FOOTAGE <u>20,7500</u></p><p>DATE <u>5/6/08</u></p></div>			

I certify that the results are a true and correct copy of the records prepared and maintained by Plymouth Tube Company, Streator in compliance with the requirements of the cited specification. Chemistry is as reported by the Steel supplier. This test report cannot be reproduced or distributed except in full without the written permission of Plymouth Tube.

Mark Reinmann
Quality Assurance

1238 East 12th Street, Steubenville, OH 44224
Phone: (615) 672-1515 Fax No. (615) 672-1363

SALES OR

037063 - 1/0

WORK ORDER 014673
HEAT NUMBER 627765

END 90013666
AND
IS 109403067
CERTIFIED

CUSTOMER P.O. CUSTOMER PART LADING NO SHIPMENT DATE
P037000003 100048

PART DESCRIPTION H030005684
OD: 0.8000" Max: 0.8000" Min: 0.8000"
Wall: 0.0630" Max: 0.0630" Min: 0.0630"
Length: 18.00" / 74.00" Spec: MIL-T-8738B Stainless Aircraft
Grade: 4130
Finish: Cond N

CERTIFICATION REQUIREMENTS

This material was fully current tested and conforms to the requirements of ASTM A-430.
The material is stress relief annealed. The final annealing temperature was 1520 degrees Fahrenheit.
The Grain Size is determined and reported by the raw material supplier in accordance to ASTM E-112.
This raw material was magnetically particle inspected by the raw material supplier in accordance to AMS 3041 under ASTM E-1464, and noted as Frequency, and Severity to AMS 2071, latest revision.
Yield is determined by using the 0.2% offset method.

Chemical Analysis

C	Mn	P	S	Si	Al	Cr	Mo	Ni	Pb	Cu
210	.03	.011	.002	.280	.022	.98	.16	.16	.001	.13
V	Ti	Sn								
.003	.005	.013								

Physical Properties

Prod. Security Grain Size
.000 .001 0

Heat Source

Heat Source
Berliner Steel Corp - Germany

Mechanical Properties

TEST	TEMP	YIELD	TENSILE	ELONGATION	REDUCTION OF AREA	CHARPY
TEST	TEMP	YIELD	TENSILE	ELONGATION	REDUCTION OF AREA	CHARPY
Rockwell B	70	100	110	25	20	120
Rockwell C	70	25	25	25	25	25
Decarbo	70	0	0	0	0	0
Total ENCD decarb	70	0	0	0	0	0

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Mark Rothmeyer
Quality Assurance